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(2) 150 kilograms (330 pounds) times the maximum persons capacity of the hoist;

(c) *Lift height* means the distance from the lowest step of the pilot ladder on a pilot hoist to the deck of a vessel on which the hoist is designed for installation when—

(1) The suspension cables of the hoist are run out until only three turns of cable remain on each drum; or

(2) If the hoist does not have suspension cables, the ladder or lift platform is in its lowest position.

§ 163.002-7 Independent laboratory.

(a) The approval and production tests in this subpart must be conducted by, or under the supervision of, an independent laboratory accepted by the Coast Guard under subpart 159.010 of this chapter.

(b) [Reserved]

§ 163.002-9 Approval procedure.

(a) *General*. A pilot hoist is approved by the Coast Guard under the procedures in subpart 159.005 of this chapter.

(b) *Approval testing*. Each approval test must be conducted in accordance with § 163.002-21.

(c) *Approval of alternative designs*. A pilot hoist that does not meet the materials, construction, or performance requirements of this subpart may be approved if the application and any approval tests prescribed by the Commandant in place of or in addition to the approval tests required by this subpart, show that the alternative materials, construction, or performance is at least as effective as that specified by the requirements of this subpart.

§ 163.002-11 Materials.

(a) *Gears*. Each gear in a pilot hoist must be made of machine cut steel or machine cut bronze, or must be of a design of equivalent strength, durability, reliability and accuracy.

(b) *Suspension cables*. Each suspension cable on a pilot hoist must be a corrosion-resistant wire rope other than galvanized wire rope.

(c) *Corrosion-resistant materials*. Materials of a pilot hoist that are not in watertight enclosures must be—

(1) Corrosion-resistant or must be treated to be corrosion-resistant; and

(2) Galvanically compatible with each other adjoining material.

(d) *Aluminum alloys*. Any aluminum alloy which is not resistant to stress corrosion in marine atmospheres (i.e., contains more than 0.6 percent copper), must not be used in a structural component or in any other hoist component subject to stress.

§ 163.002-13 Construction.

(a) *General*. Each hoist must have a rigid ladder or a lift platform on which a person being raised or lowered may stand.

(b) *Spreader*. Each hoist must have a spreader or other device to prevent twisting of its ladder or lift platform. If a spreader is provided, it must be at least 1800 millimeters (5 feet, 10 inches) long.

(c) *Rollers*. The rigid ladder or lift platform on a pilot hoist and the ends of its spreader (if a spreader is provided) must have rollers at each point of contact with the vessel that allow the ladder or platform to move smoothly over the side of the vessel.

(d) *Load carrying parts*. Each load carrying part of a pilot hoist must be designed to have a minimum breaking strength of at least six times the load imposed on the part by the working load during operation of the hoist.

(e) *Exposed moving parts*. Each exposed moving part of a pilot hoist that poses a hazard to personnel must have a screen or guard.

(f) *Nonfunctional sharp edges and projections of excessive length*. A pilot hoist must not have nonfunctional sharp edges and must not have fastening devices or other projections of excessive length.

(g) *Installation requirements*. Each pilot hoist must be designed to allow—

(1) Its installation along the edge of a deck at a vertical portion of the hull;

(2) Its installation on the deck in a manner that does not require use of the vessel's side rails for support; and

(3) Unobstructed passage between the ladder or lift platform of the hoist and the deck of a vessel.

(h) *Deck interlock for portable hoist*. A pilot hoist, if portable, must have a deck interlock that prevents movement of the ladder or lift platform when the hoist is not installed.

(i) *Power source.* Each hoist must be designed to operate on electric, pneumatic, or hydraulic power or a combination of these.

(j) *Electrical equipment.* Electrical equipment of a pilot hoist must meet the electrical engineering regulations in part 111 of this chapter. The operating voltage of electrical equipment on the ladder or lift platform of a pilot hoist must not exceed 25 volts.

(k) *Pneumatic and hydraulic equipment.* Pneumatic and hydraulic equipment of a pilot hoist must comply with the marine engineering regulations of subpart 58.30 of this chapter. Each pneumatically powered hoist must have a water trap, air filter, air regulator, pressure gauge, and oil lubricator in the air line between the vessel's compressed air source and the pneumatic motor.

(l) *Hoist control lever.* Each pilot hoist must have a control lever for raising and lowering its ladder or lift platform. Movement of the lever upward or toward the operator must result in upward movement of the ladder or lift platform. Movement of the control in the opposite direction must result in downward movement of the ladder or lift platform. The control must be designed so that when released by the operator the ladder or lift platform stops immediately.

(m) *Emergency disconnect device.* Each pilot hoist must have a switch or valve for disconnecting the main power source in an emergency.

(n) *Power indicator.* Each pilot hoist must have an indicator to show the operator when power is being supplied to the hoist.

(o) *Arrangement of controls and power indicator.* The hoist control lever, the emergency disconnect device, and the power indicator on a pilot hoist must be arranged so that the hoist operator, when standing, can view all movement of the ladder or lift platform while using this equipment.

(p) *Hand-operated device and interlock.* Each pilot hoist must have a hand-operated device for raising and lowering its ladder or lift platform. The device must be operable from a standing position. The hoist must have an interlock that prevents simultaneous operation of its hand-operated device and its

power source. Any removable hand gear, crank, or wheel of the hand-operated device must be securely stowed on the hoist.

(q) *Upper position stop.* Unless a hoist has a pneumatic motor that stalls at the end of cable travel without jarring, jerking, or damaging the hoist, it must have one or more limit switches or valves that stop the ladder or lift platform at its upper end of travel without jarring, jerking, or damaging the hoist.

(r) *Means of lubrication.* Each hoist must have a means to lubricate its bearings. Sliding-contact gearing, such as worm gears, must operate in an oil bath, or have another means of lubricating the gear teeth on each revolution. Each lubricant enclosure must be designed so that it can be readily filled, drained, and checked for lubricant level.

(s) *Machinery housing.* Each machinery housing on a pilot hoist except gear boxes and other enclosures that retain lubricants, must have means that permit examination of all internal moving parts using common tools or without tools. Each machinery housing, except gear boxes and other enclosures that retain lubricants, must be designed to prevent moisture accumulation.

(t) *Suspension cable.* If a hoist has suspension cables, at least 2 cables must be provided and they must be arranged so that the ladder or lift platform remains level and stationary if one of the cables breaks. Each cable must be arranged to lead fair in a 15 degree vessel list toward the side of the vessel on which the hoist is installed. The devices for attaching the cables to their winch drums must be capable of supporting 2.2 times the working load with the cables run all the way out.

(u) *Sheaves and drums.* Each sheave and each winch drum for a suspension cable on a pilot hoist must be of a size recommended by the cable supplier for the diameter and construction of the cable. Each sheave must have a device that prevents the cable from jumping out of the sheave groove. Each drum must be designed to accept one level wind of wrap. The fleet angle of a grooved drum must not exceed 8 degrees, and the fleet angle of a non-grooved drum must not exceed 4 degrees.

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NOTE: The term *fleet angle* is defined in § 94.33-10 of this chapter.

(v) *Rigid ladder.* A rigid ladder on a pilot hoist must have thermally insulated handholds and a padded backrest so that the person being raised or lowered may firmly brace himself or herself between the ladder and the backrest. The ladder must be at least 2.5 m (100 in.) long from the bottom rung to the top of the handholds.

(w) *Ladder rungs.* Each rigid ladder must have at least six rungs, each with a non-skid surface that does not retain water. Adhesive non-skid sheets may not be used. (For example, a suitable surface for a wooden rung is one that has grooves at least 3 mm (1/8 in.) deep cut in a diamond pattern so that water runs off the edge of the step. Non-skid grit is applied directly to the step surface.) The stepping surface of each rung must be not less than 115 mm (4½ in.) wide and not less than 400 mm (16 in.) long. The distance from the top of one rung to the top of the next must be uniform, between 300 mm (12 in.) and 350 mm (13¾ in.).

(x) *Platform railing.* A lift platform on a pilot hoist must be enclosed by a guardrail that has a diameter of between 30 millimeters (1¼ inches) and 75 millimeters (3 inches). The center of the guardrail must be at least 900 millimeters (3 feet) above the platform. At least one intermediate rail must be provided between the guardrail and the platform. Each rail must be set back from the edge of the platform at least 50 millimeters (2 inches). Each gate in the rails must have a latch that can keep the gate securely closed.

(y) *Platform floor.* The platform floor of a pilot hoist must have a non-skid surface and must be at least 750 millimeters (30 inches) by 750 millimeters, exclusive of the surface area of any hatch. Each hatch in the platform floor must be at least 750 millimeters (30 inches) by 750 millimeters. Each hatch must have a means to keep it securely positioned both when opened and closed.

(z) *Pilot ladder fittings.* The bottom of the rigid ladder or lift platform on a pilot hoist must have fittings to attach a pilot ladder of the type that meets the requirements of subpart 163.003 of

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this chapter. The fittings must be arranged so that—

(1) The distance between the top of the highest step on the pilot ladder and the surface of the lift platform or top of the bottom rung on the rigid ladder is between 300 and 350 millimeters (12 and 13¾ inches);

(2) The steps of the pilot ladder are directly below and in line with the steps of the rigid ladder or edge of the lift platform; and

(3) The pilot ladder can bear on the side of the vessel when in use.

(aa) *Emergency stop switch.* Each pilot hoist must have an emergency stop switch that can be operated by a person on the ladder or lift platform.

(bb) *Fasteners.* Each fastening device securing a part of a pilot hoist must have a means to prevent the device from loosening.

(cc) *Gears.* Each gear must be keyed to its shaft.

(dd) *Welding.* Each weld must be made using automatic welding equipment or be made by a welder who is qualified by the U.S. Coast Guard, U.S. Navy, American Bureau of Shipping, American Welding Society, American Society of Mechanical Engineers, or other organization that has similar procedures for welder qualifications that are acceptable to the Commandant.

§ 163.002-15 Performance.

(a) Each pilot hoist must have sufficient performance capability to pass the approval tests in § 163.002-21.

(b) [Reserved]

§ 163.002-17 Instructions and marking.

(a) *Instruction plates or placards.* Each pilot hoist must have instructions that show its method of operation and lubrication of its working parts. The instructions must be on one or more corrosion-resistant plates, or must be weatherproof placards. The instructions must be attached to the hoist. Each instruction must be in English or must have understandable symbols or pictograms. The operator of the hoist must be able to see and read the operating instructions when operating the